



Department of Forestry and Natural Resources Strategic Plan 2016-2020

Vision

The Department of Forestry and Natural Resources (FNR) will be a world leader in natural resource stewardship, as evidenced by excellence in:

- 1) Training and learning programs for undergraduate and graduate students;
- 2) Creating research programs with regional, national, and global significance;
- 3) Engaging and educating stakeholders through extension programs and outreach efforts;
- 4) Integrating across teaching, research, and extension missions; and
- 5) Creating an inclusive culture that supports respect for all.

Mission

The Department of Forestry and Natural Resources will partner with federal, state, and private organizations to develop and disseminate knowledge in the natural resource sciences associated with the protection, management, and sustainable use of terrestrial and aquatic ecosystems; the fish, wildlife, water, and timber resources they produce; and the ecological, recreational, and esthetic benefits they provide.

Values

The Department of Forestry and Natural Resources focuses on teaching, research, and extension in which we seek:

- To understand the *Ecology of Natural Systems*, (i.e., to develop knowledge of factors influencing complex interactions in ecological systems at multiple scales of biological organization ranging from molecular and physiological to community and eco-region units), with an emphasis on anthropogenic drivers such as climate and land-use change, and tactics for restoring and conserving ecological processes.
- To advance basic knowledge of *Forest Biology*, including forest ecosystems as well as the physiology, survival, and growth of hardwood trees; and to provide for the health and sustained productivity of rural and urban forests of the Central Hardwood Region.

- To develop and disseminate new knowledge in *Fisheries and Aquatic Sciences* that broadens understanding of aquatic animals and their habitats, including aquaculture; population and community interactions; relationships between aquatic and terrestrial ecosystems; fates and effects of pollutants; and appropriate management practices for the protection and use of aquatic ecosystems.
- To increase and disseminate knowledge of *Wildlife Science* that advances understanding of wildlife species, populations, and communities, their importance to ecosystem structure and function, and their responses to environmental change for the purpose of wildlife and natural ecosystem conservation.
- To expand knowledge that will increase use of *Sustainable Biomaterials*, improve processing technologies, and encourage innovation in product design, development, and wood biomass utilization.
- To develop knowledge pertaining to *Genetics and Genomics* of both natural and captive populations of fish, wildlife, and trees and other plants that can be applied to critical questions in conservation biology, plant propagation, and fish and wildlife management.
- To expand knowledge about *Natural Resource Social Science* (i.e., human beliefs, attitudes, and behaviors regarding natural resources); and to provide effective processes for linking social and scientific knowledge to natural-resource planning, management, and policy decisions.
- To develop integrated systems of *Forest Measurement and Assessment/GIS* that provide quantitative techniques to assess and analyze forests and associated ecosystems and the resources they contain, and to evaluate forest management and natural resources conservation strategies.

Teaching: Students Prepared to Make a Difference

Goals: Ensure that Purdue is globally recognized as the preferred source of natural resource graduates who are prepared to lead and make a positive impact, whatever their career path. Cultivate Purdue FNR students' expectation to work hard, rise to challenges, and make a difference in a rapidly changing world.

Initiative 1: Increase recruitment and retention of well-qualified students in support of University initiatives to broaden access to the Purdue Experience.

Actions:

- Strengthen the P-14 and Science/Technology/Engineering/Agriculture/Mathematics (STEAM) education pipeline to support student recruitment in low-enrollment majors.
- Support efforts to build a robust transfer pipeline with community colleges and regional campuses.
- Continue to enhance recruitment of students currently enrolled at Purdue in Exploratory Studies by strengthening ties to Exploratory Studies advisors and by participating in General Studies courses.

- Develop and implement a recruiting strategy to increase the number, participation, and success of undergraduate students from under-represented groups.
- Engage learners as appropriate in non-residential, online, and modular learning opportunities.

Initiative 2: Integrate the development of cultural awareness into all on-campus, co-curricular, and study-abroad student experiences.

Actions:

- Broaden students' worldview and foster intercultural development through domestic and study-abroad experiences.
- Integrate instructors' international experiences and expertise into their courses and other learning experiences.
- Require training for instructors to create inclusive and open classroom environments and require that a diversity statement is included in all course syllabi.
- Create new and update existing curricula using innovative instructional technologies to enhance the learning experiences of resident students and to provide flexible access to the undergraduate program.
- Ensure that each undergraduate student obtains international experience and perspective through study-abroad, domestic, or on-campus experiences.
- Provide students with additional exposure to international/global policy and regulatory issues.
- Create opportunities to integrate U.S. and international students in mutually beneficial learning experiences.

Initiative 3: Prepare and support faculty and staff to engage internationally, and recognize faculty and staff who do so.

Actions:

- Ensure that the scholarship of international learning, discovery, and engagement is clearly communicated to faculty.
- Adopt a proactive and visible strategy for involvement in international teaching activities.
- Help faculty and staff identify how international activity can be part of their professional responsibilities and develop their international goals.
- Provide effective project management support to faculty and staff engaged in international activities.

Initiative 4: Deepen collaboration with partners who seek Purdue FNR graduates.

Actions:

- Establish new and strengthen existing ties with employers and industrial partners.
- Leverage industry partnerships in co-curricular offerings, including research, leadership, interdisciplinary experiential service-learning, and internship opportunities.
- Establish new and strengthen existing ties with peers training the next generation of natural-resource professionals.

Initiative 5: Emphasize faculty and academic staff development, recognition, and support in teaching and learning as it relates to the student experience.

Actions:

- Continue to support hiring, retaining, promoting, and rewarding faculty who have a commitment to academic programs, and to student engagement, mentoring, growth, and development.
- Maintain and improve our support structure and culture that emphasizes excellence of teaching and learning, especially experiential learning; undergraduate research; service learning; and student engagement with industrial partners and projects. Improve the required on- and off-campus learning facilities/space.
- Continue to support faculty in delivering relevant, cutting-edge, and broadly applicable curricula using contemporary pedagogies to help students maximize the value of their learning experience.
- Continue effective academic advising structures that encourage and support students to take control of their time-to-degree while taking full advantage of faculty engagement and the entire Purdue educational experience.
- Support faculty to share disciplinary knowledge with new audiences by incorporating non-residential, online and modular programs, in addition to traditional lectures and labs.

Initiative 6: Prioritize efforts for global impact by proactively focusing on areas of strength and working strategically with partners on and off campus.

Actions:

- Continue to provide global leadership in focus areas/areas of strength.
- Continue to create the next generation of leaders throughout the world.
- Continue to work strategically with partners within and outside Purdue to address important global opportunities and challenges.
- Continue to pursue international capacity-building opportunities that have synergistic benefits for Purdue and for Indiana.

Research and Graduate Education: Discovery with Impact

Goal: Create and support a community of engaged, productive, and collaborative scholars who are world leaders in their respective disciplines, push back the boundaries of natural-resource sciences, and address society's most pressing opportunities and challenges through creative and high-impact disciplinary and cross-disciplinary research.

Initiative 1: Drive interdisciplinary research by creating a culture of “we” in approaching our science.

Actions:

- Develop a process for envisioning and creating the next ‘Big Thing(s)’ in the department, including regular solicitation of ideas from across the department, being mindful that both translational and basic science are essential to creating short- and long-term impacts.

- Foster innovative research and interdisciplinary collaborations that jointly benefit faculty, the department, and society, emphasizing informal, bottom-up team and research-strategy development.
- Invest in teams that integrate across disciplines and mission areas to demonstrate global leadership in addressing grand challenges, by encouraging, valuing, and rewarding interdisciplinary collaborations.
- Continue investment in competitive, internal programs (e.g., small grants program, post-doctoral scholars program) that fully engage interdisciplinary teams.
- Build strategic partnerships with other Purdue departments and colleges, other universities, industry, and governmental and non-governmental agencies to enhance the science of the department.
- Develop hiring initiatives within interdisciplinary programs to foster collaborations within the Department and College, and across Purdue.

Initiative 2: Enhance research facilities by building new facilities and improving existing facilities both on and off campus to promote world-class disciplinary and cross-disciplinary research. Create functional and attractive spaces that draw faculty, staff, and students to the workplace. Enhance shared resources by creating and supporting infrastructure that spans disciplines, laboratories, and buildings.

Actions:

- Invest in new facilities with dedicated shared research spaces to foster interdisciplinary collaborations, and for idea and strategy incubation.
- Invest in new facilities to accommodate new faculty hiring opportunities and visiting scholars.
- Create and implement a balanced in-house and out-sourcing plan for supplies and services (i.e., laboratory and field equipment, IT support, facilities training) to improve overall efficiency of operations.
- Involve faculty in development activities for new facilities; tap into existing relationships between faculty and staff members and potential donors; create a mechanism for external sponsorship of facility upgrades; build linkages with Development and Agricultural Communications to support relationships and find imaginative ways to help sponsor research.
- Provide full and uninterrupted access to state-of-the-art equipment to support labs and field facilities for basic and applied research, and train personnel to enable and expedite research that otherwise is not possible within the confines of an investigator-managed laboratory.
- Continue to support multi-disciplinary, shared facilities in a manner that optimizes their use and management.
- Continue to support a mechanism to upgrade and replace equipment to utilize current, state-of-the-art technologies.
- Ensure that core facility managers and professional staff continue to have access to professional development opportunities.

Initiative 3: Invest in the future of natural-resource science through holistic graduate and post-doctoral training programs that prepare individuals to be successful leaders in their chosen field.

Actions:

- Emphasize creative opportunities unique to Purdue that would both attract graduate students/post-doctoral researchers and make them highly valued in the marketplace.
- Maintain the universal learning outcomes in the graduate programs, including written and oral scientific communication, teamwork, and competencies.
- Recruit and retain underrepresented minorities and international students by investing in their success.
- Increase professional development and networking opportunities that enhance international, industrial, research, and teaching career paths for graduate students and post-doctoral associates.
- Increase investment in travel scholarships for graduate students and post-doctoral associates that allow every trainee to attend a national meeting to present research results.
- Maintain focus on extension activities, and link graduate students with Extension contacts; make graduate students aware of careers in extension; create contacts with industry and communicate our science to a general audience.
- Solicit input from the department's external advisory council to provide insight on graduate education and help guide graduate students and post-doctoral associates in preparing for careers outside of academia.
- Maintain connections with graduate students beyond their degrees to foster new opportunities for undergraduate and graduate students in the department.
- Develop clear metrics (productivity, time to degree, job placement, etc.) to evaluate the impact of graduate and post-graduate education that can be used to develop future goals for programs and serve as a resource to develop training-grant proposals.

Extension/Engagement: Strengthening Lives and Livelihoods

Goal: Be recognized as the premier institution engaging stakeholders across Indiana and beyond in identifying and addressing priority issues to enhance their quality of life, efficiency, and/or effectiveness, through research-based education related to natural resources.

Initiative 1: Create innovative, multi-disciplinary educational programming to address natural resources and associated social and economic issues relevant to Indiana.

Actions:

- Develop holistic programs that span disciplines and engage traditional and new audiences across Indiana.
- Maintain urban outreach programs.
- Integrate extension stakeholder representatives into the FNR external advisory council or develop an external advisory council to help provide insight on extension programming needs of the state.

- Utilize technological advancements to increase extension programming reach.

Initiative 2: Enhance existing partnerships while exploring new partnerships that increase program effectiveness.

Actions:

- Maintain collaborations and involvement with internal partners including Illinois-Indiana Sea Grant, U.S. Forest Service, Walnut Council, Indiana Forestry & Woodland Owners Association, and Indiana Arborists Association.
- Enhance external partnerships to deliver new and innovative programs.
- Develop and deliver a recurring state-level natural resources summit targeting Indiana Conservation Partner members.

Initiative 3: Leverage new opportunities to effectively raise awareness of Extension resources, programs, and successes.

Actions:

- Define key messaging and brand positioning statements that can serve as an anchor for all components of Extension marketing.
- Consider a wider range of media (e.g., TV, radio, online) beyond print/brochures, including aggressive use of social media marketing and communications.
- Showcase the success stories of Educators and Specialists to establish relevance to stakeholders.

Initiative 4: Enhance the capacity of FNR extension.

Actions:

- Expose undergraduates to the breadth of Extension programming and professional opportunities.
- Enhance University engagement by integrating graduate students in Extension programming and providing opportunities to produce deliverables.
- Create a graduate student assistantship to link research and engagement.
- Require that all new and renovated buildings have space allocated for cross-departmental, interdisciplinary collaborations, including extension.
- Provide full and uninterrupted access to state-of-the-art equipment to support and expedite extension programming that otherwise is not possible within the confines of an investigator-managed laboratory.
- Maintain meaningful extension capacity across disciplines for faculty, professional staff, and clerical staff.
- Develop and implement staff-guided training programs to enhance employee skill sets.

Integrative: Working Together, Achieving More

Goal: Build, promote, and reward collaborations that blend teaching, research, and extension; enable students, faculty, and staff to address issues that transcend disciplinary boundaries; and

strengthen the bond between science and life-long learning. Leverage departmental programs and assets to promote cross-mission activities.

Initiative 1: Promote the involvement of departmental properties across all mission areas.

Actions:

- Maintain or create current management plans and maps for all departmental properties and store these on a server accessible to all department members (i.e., FNR shared drive).
- Encourage curricular and extra-curricular activities on our departmental properties that build long-term databases suitable for use in research, teaching, and extension programs.
- Consider departmental property management plans in mission-area programming.
- Continue to review the current breadth of ecosystem types and conditions across department properties to decide what changes in property holdings or management actions might facilitate more involvement.

Initiative 2: Involve undergraduate students in research and extension throughout their academic program, while continuing to facilitate opportunities for graduate students to gain experience in all departmental mission areas.

Actions:

- Provide students with training in complex and realistic problem solving.
- Encourage student involvement and leadership in professional societies, campus organizations, and interdisciplinary centers and programs.
- Facilitate opportunities for graduate student teaching experience beyond the traditional teaching assistant model (e.g., 1-credit course, guest lectures, teaching certificate).
- Promote oral and written communication skills through extension and outreach activities.

Initiative 3: Build and encourage a stronger international component to research, teaching, and extension programs.

Actions:

- Consider and implement departmental mechanisms to simplify hosting of visiting scholars.
- Mentor junior faculty on the opportunities and potential return on investment related to international activities. Effectively communicate how international work can be accomplished without a requirement to travel abroad.
- Continue to promote and expand support for international study abroad opportunities.

Climate/Community: Who We Are, How We Work

Goal: Build and sustain a climate and culture in which *everyone* in the department is included, respected, and supported, and individuals are able to reach their full potential for success.

Initiative 1: Develop and sustain a collegial environment where a diverse community can thrive.

Actions:

- Recruit, retain, and mentor a faculty, staff, and student population that represents the demographics of our ever-changing society.
- Deliberately invest in opportunities to enhance diversity and add at least one faculty member as a diversity catalyst.
- Participate in cross-cultural, cross-gender, and cross-role mentoring; require diversity training for all faculty, staff, and students who mentor graduate students or post-doctoral associates.
- Promote work/life balance across FNR through actions such as increased awareness of scheduled meeting times, considerate deadlines, and no expectations to respond to e-mail outside of normal business hours.
- Increase collegiality and mutual respect across faculty, staff, students, disciplines, and roles.

Initiative 2: Improve capacity of administrators, faculty, staff, and students to create and operate in a diverse and inclusive environment.

Actions:

- Require new hires (faculty, staff, graduate students, post-doctoral associates) to participate in diversity-training activities.
- Increase participation in SafeZone training and programs such as “Navigating Differences” throughout the department.

Initiative 3: Enhance policies and procedures and pursue structural changes to reflect our institutional commitment to diversity and inclusiveness.

Actions:

- Continue to establish diverse pools of applicants for administrative, faculty, and staff positions, and for graduate and undergraduate student populations.
- Ensure that communications materials (publications, websites, etc.) reflect the diversity of FNR.
- Encourage diverse composition of graduate-student committees.
- Encourage diverse speakers for the graduate seminar series.
- Maintain support for College and University diversity recruitment efforts.